

DOCUMENT RESUME

ED 077 353

HE 004 141

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TITLE The Changing College Curriculum-Issues and
Implications. Instructional Systems in Higher
Education-Specifications for Individualization.
INSTITUTION Pennsylvania State Univ., University Park. Center for
the Study of Higher Education.
PUB DATE Jan 70
NOTE 30p.; Report No. 2
EDRS PRICE MF-\$0.65 HC-\$3.29
DESCRIPTORS College Role; *Curriculum Development; *Educational
Change; *Higher Education; *Individualized
Instruction; *Instructional Systems; Student Needs

ABSTRACT

This report presents two papers concerning issues and implications of the changing college curriculum and specifications for individualization of instructional systems in higher education. The first paper stresses the need for leadership exercised in obtaining the commitment to values. This can occur only when processes of orderly implementation of change or reform are present and adequately administered. The second paper lists ten specifications for individualized instruction based on a review of negative characteristics of the conventional instructional system. The negative characteristics of instructional systems include the emphasis on time restriction, normative rather than criterion based curriculum, the symbolism of process, the concern for a manpower screen rather than manpower development systems, evaluation consciousness, and student adaptation made by the individual rather than by the system. (MJM)

ED 077353

THE CHANGING COLLEGE CURRICULUM -- ISSUES AND IMPLICATIONS -- G. LESTER ANDERSON

INSTRUCTIONAL SYSTEMS IN HIGHER EDUCATION -- SPECIFICATIONS FOR INDIVIDUALIZATION -- STANLEY O. IKENBERRY

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CENTER FOR THE STUDY OF HIGHER EDUCATION
THE PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA.

JANUARY 1970

REPORT NO. 2

HE 004 141

The Changing College Curriculum -
Issues and Implications*

G. Lester Anderson

Clear and consistent trends concerning the curriculum of American Colleges and Universities are at this time hard to discern. Mayhew declares that " . . . no clear resolution of basic issues has yet been accomplished." He goes on to observe that "further resolution is not likely for issues seem rooted in man's condition, in the change and flux of life, and in society."¹

But to have made these observations is not to deny that issues exist on which a given institution may be expected to take a position, or that there is currently within the higher education establishment much ferment regarding goals and purposes and means to attain them which include the curriculum. Indeed, ferment at the present time is considerable. Institutions of any size and of any character should be aware of this ferment, its potential for change, and as institutions should have a stance or posture, albeit a flexible one, about themselves and their future.

It is not hard to assemble a considerable catalog of contrasting positions regarding purposes and relevant curriculums for colleges.

*This statement was presented at a conference for the Council for the Advancement of Small Colleges in August, 1969, and will appear in the Journal of General Education in slightly modified form within the next year.

¹Mayhew, Lewis B. The Collegiate Curriculum/An Approach to Analysis SREB Research Monograph Number 11. Southern Regional Education Board, Atlanta. Undated, pages 10-11.

There is the issue of liberal-general-humanities centered institutions versus the scientific and technological. There is the non-vocational versus vocational emphasis. There is an intellectual emphasis versus an affective one. Other contrasting positions would include: knowledge, value-free emphasis as contrasted with a more subjective value-laden one; a structured learning environment versus an experiential, exploritative one. This last issue can take a variety of forms: courses versus experience; formal courses versus independent study; program accounting versus evaluation by examinations; quantified, objective learning versus the subjective, aesthetic, humanistic; set schedules versus high flexibility; in-class-learning versus on-the-job or field experience learning. It will, of course, be understood that none of these confrontations of point of view or of perspective are cleancut, let alone definitive. Rigorous contrasts are not to be presumed but the terminology does point to variety in points of view about curriculum and instruction in American Colleges. All have high visibility and acceptability at this time.

At a more currently significant, that is popular, level a number of things are developing which must be known and understood. Some of these are restorations of ancient concepts, others are a more dramatic exploitation of or an extension of practices which have not had emphasis in the past. These would include the living-learning environmental arrangements which certainly derive from Oxford and Cambridge, study abroad, independent study, tutorials, use of summers or intersessions for concentrated, generally out of class, learning activity, on-the-job

learning, social service for learning's sake, interdisciplinary seminars or programs, area studies, culture concentration studies, and the "free university."

If there is one development which should be sharpening perspectives about the curriculum more than others it is that of student concern and student aggression. It seems that the message which should be coming through from students is not recognized as a message and, if recognized, is then misread.

The aggression of students on a number of American campuses these last years has failed of its purpose. The clamor of the aggressors, the frontal attack upon conservative or long established value systems, the crudity and bad taste often displayed by the aggressors, and their sometime violence, have concealed the message. But the message is there for those who would hear it. And it is a message that curricula must be reformed and instruction improved. It is, of course, also a deeper message, one of extreme distress for value systems too pervasive in our culture, - of racism, war, poverty, indulgence, of almost callous unconcern for the condition of other humans. And who would claim that these deep concerns do not have profound implications for the college curriculum?

But the important message for this paper is the demand for curricula redesign which if not always clear, is critical.

What is happening is this: A significant proportion of our student bodies, significant enough to have disturbed not only the community internal to the college but to have startled, disturbed and shocked almost all organized segments of our social system, are saying that traditional

higher education, including the curriculum, is now largely irrelevant, at least irrelevant for goals which should be ours.

These young people are bright. They are well informed for their years. They come from homes of affluence and of pervasive middle-class value systems as well as from the so-called underprivileged segments of society. They are often your children and mine. They are saying that relevant higher education should produce a changing value system for America and should do so immediately. Youth are displaying a sense of urgency and impatience with the traditional slow pace of curriculum change. Education, they say, should not be the hand-maiden for, or in-service to the wealth producing community as such, to the defense community as such, to the "secure" segments of the population as such. They are asking for education which interprets and is critical of our philosophical bases for human relationships. Such education would appear to be existential in its own philosophical base. It is basically not pragmatic. It is most often anti-puritan. It is often anti-naturalistic. I do not, however, wish to pretend that I sufficiently understand what is being said to know in any definitive way what an institution should do. I do know that despite the concerns of many adults that in the name of anti-aggression and anti-violence some students act with aggression and violence, in spite of protests for freedom which become exercises in license, that the majority of protesting youth are protesting from a strongly moral base. Their warnings, their challenges, their disturbances cannot be ignored.

Having pronounced this homily we should perhaps return to mundane considerations. Despite our opening statement that a simplistic resolution

of basic issues is not to be expected, that a monolithic integrity of purposes and process for all American Colleges cannot, and in my view should not, be attained, there is a common base from which all work. All American College curriculums are in the end knowledge based and knowledge in our culture is discipline based. Subjects will not disappear. We are all heirs to an Aristotelian derived organization of knowledge signified by the disciplines in which the Western tradition and culture reside and through which Western culture advances. We do not conceive a significant departure from a knowledge based, discipline controlled, subject centered curriculum for America's Colleges. This is as true for vocational, technical, experience emphasizing institutions as for those with a strong liberal-general education emphasis, conservative or classical in educational orientations.

But given this base, there is great latitude in which each institution can express its own integrity, its own educational style, its own emphasis, its own value systems, can have its geist. And the heart of the matter is for each college to know this and to attain or assert its own identity.

The alternatives available to an institution in charting its course are several. If an institution wishes to give more than lip service to liberal or general education objectives it will of necessity operate from a philosophical base. Taylor has identified three philosophical systems which are represented in American institutions. He calls these systems rationalism, neo-humanism or eclecticism and naturalism.² While none is

²Harold Taylor. "The Philosophical Foundations of General Education." Chapter II of General Education. Fifty-First Yearbook, Part I. National Society for the Study of Education. University of Chicago Press: 1952, pages 20-45.

extant in pure form, rationalism is represented in most Catholic Colleges and at St. Johns', neo-humanism has characterized general education programs at, for example, Harvard and Columbia, and naturalism is basic at Antioch, Sarah Lawrence and the old General College at Minnesota.

Some institutions are seemingly feeder schools to the graduate and professional schools of the University, and their emphasis is almost entirely disciplinary. They may enforce distributional requirements to give a semblance of plausability to general or liberal educational values, but majors in the disciplines are the crux of it all. Each discipline knows its primary task is to "train" a man or woman who can perform adequately within the framework of a discipline in a University graduate department or of a professional school. The philosophical base, if there be one, is pragmatic or utilitarian. This is to say that the disciplines are highly useful, and people who understand them are useful people either as disciplinarians themselves or in professions which have a disciplinary base. And colleges, or some colleges at least, exist to educate and train such people.

It is interesting to consider Daniel Bell's deservedly prize winning volume, The Reforming of General Education³, in terms such as those we have just stated. The book reveals a brilliant intellect and a master of a discipline at work. But Bell's book is in the end a restatement of the value of the individual who has confronted and has attained relative control of his discipline. Then and then only is one to "go beyond" and involve himself, for example, in interdisciplinary study.

³Daniel Bell. The Reforming of General Education. New York: Columbia University Press, 1966. Also Anchor edition, 1968.

I should state that I find nothing unexceptionable in American Colleges which accept a discipline orientation, per se. I have great respect for the disciplines and for persons who are competent in them. But I would want such institutions to know what they are and not pretend to be otherwise. All the connotations of a discipline orientation should be recognized. For example, to practice within a discipline, e.g. to have a chemistry major and work as a bench chemist or to take a major, especially a doctorate, in history and teach it is to have been vocationally educated. A discipline oriented institution should not be "holier than thou" regarding professionally or technically oriented institutions.

Many American Colleges have highly significant "vocational objective roles" to play in American life. Teaching is the single most important vocational outlet for graduates of most four year colleges, but many such colleges offer programs in such vocational areas as business, nursing, and science related technologies, e.g. computer services, which are most important to the Nation. I believe it is as legitimate and as socially significant for colleges to educate teachers or accountants as to send its graduates to the Harvard Business School, to study law at Yale, or to the graduate economics department of major universities. But again, let each college know what it is, and know what it is doing. Let it not confuse its identity, deny its personality, or pretend to purposes which it does not attain. I believe also that this is the essence of the "academic" honesty the students are demanding.

Institutions then must make choices or determine emphases among liberal and vocational ends. It must find in some fashion philosophical roots or accept a pragmatic solution to the need for a philosophical base by accepting, inter alia, a pragmatic philosophy.

Within the liberal-general education context and with a common philosophical base institutional styles and attendant development of human personalities can vary. To liberally educate a man is it to make him a thinking man? a moral man? a happy man? a wise man? an adjusted man? a conforming man? a learned man? a free man? a creative man? a developing man? Perhaps our objective is a total man who will be reflective, wise and moral. It is, in my opinion, of some significance for faculty, for administrators, indeed for students to think about such things. Such concerns and their review are as significant if indeed not more so, for college faculties as those which involve numbers of credits to be granted for ROTC, the number of courses to be required outside the major, or the validity of a "C" average requirement for graduation. Indeed, an institution thinking about the former concerns is typically not so much concerned about the latter. Inversely, an institution which seems not concerned about the integrated substance of its curriculum is too often unduly concerned about form.

What I have tried to say without any particular clarification of categories of choice, is that while there will be no "national higher education establishment" resolution of issues which will make all institutions basically alike, each institution should have a reasonable perspective on itself and know what it is. And it should also know what it can become.

I do believe, however, there are a few statements which may establish values on which we can take a common stand. That is, while we may represent diversity of values philosophically and in purpose, we can unite on other value systems. Let me enumerate the principal ones.

Higher education should be strongly intellectual in content and method. Courses or programs should always test the intellectual mettle of students enrolled in them. A test often applied to determine whether a program is collegiate and not simply post-secondary is the degree to which it makes intellectual demands on its students. It is true that institutions differ greatly in their intellectual selectivity using such measurements as the College Board Scholastic Aptitude Tests. In addition, institutions will differ greatly one from another in their relative emphasis on an intellectual component as contrasted with, for example, a performance component in the attainment of basic purposes. But no institution can eliminate a commitment to the intellectual development of its student body except as it ceases to be an institution of higher learning.

To fail to develop the intellectual capacities of students in a really significant way is to fail to educate. While distinctions between education and training are often made from snobbery and are also often invidious, there is a point to the distinction. Any institution which only trains to a performance standard and ignores the intellectual base to performance is not worthy of the collegiate designation.

Higher education should influence value commitments. The value systems of students should normally have a rather powerful affective base as well as an intellectual base. The value system developed should, it

would seem reasonable to conclude, pertain to one's personal system of values and to the discipline or profession which is the larger component of a given student's formal collegiate education. What Sanford is saying in his book, Where Colleges Fail⁴, is that they fail to establish within students, a value system. Certainly the liberally educated man is a man apart and he is a man apart in that he has commitments to certain processes of thought and behavior. Likewise, we know that students undergo a process which the sociologists call "socialization" as they master a discipline or are trained to a profession. Socialization implies a commitment on the part of the professor to go beyond knowledge and intellect to those aspects of being and doing which comprise the affective domain. We know that education is not based merely on exposure to knowledge or even on lessons learned and credits collected. One who "goes to college" experiences a way of life which is unique in that it combines the intellectual and the affective to produce the truly educated person. This must be true for persons who attend liberal arts colleges, teachers colleges, business colleges, engineering colleges, schools of fine arts, of medicine, or of law, - for all these there should be an intellectual system and a values system with a strong affective overlay.

Third, it seems to me that education should be conducted with style. By this, I mean, the curriculum and processes of instruction should not be bland, tasteless, or served cafeteria style. Education should, for a given institution possess individuality, character, distinctiveness and distinction. It should not only inculcate value but should itself be

⁴ Nevitt Sanford. Where Colleges Fail. San Francisco: Jossey-Bass, 1967.

value laden. Those who dispense it should care and should be perceived by students as caring. The ends to be attained and the means used should be important to the students involved. Not only should an institution have an identity and integrity, that it has both should also be clear to students as well as staff. Identity and integrity are the essence of style and they command a loyalty not because it is due but because it is unnatural to withhold it. Such characteristics always mark the great institutions, but they can also mark the nationally unhonored and unsung, and so they should.

I have no particular attachment to some of the currently fadish modes of curriculum organizations and institutional process. I think a junior year abroad would be very nice but is not ipso facto superior to a year in the United States. I am relatively indifferent as to whether a student pursues four subjects carrying four credits each per term or five subjects carrying three credits. Distinction between semesters, trimesters, quarter systems and what have you seem to me to be relatively insignificant. All this I believe except in one regard. Institutions which are seemingly innovative or creative (horrid words but I will use them) about such matters are institutions which often have style. In different terms, these activities indicate institutions which "care". I earlier cautioned that institutions which are concerned with form are sometimes not concerned with substance, particularly when an institution is seemingly following trends rather than leading them. But departures from the norms in calendar, schedule, credit arrangements, class processes and so on, often affect learning. They affect it not because of intrinsic merit or causal

relationship but because they signify a lively institution, a caring institution and students respond with higher than normal motivation and expectation in such situations.

To conclude this section we may say the following. While a variety of curricular issues remain moot, certain values regarding any institutions program should be common. At all times the curriculum should have significant intellectual components and should assure that students are tested intellectually. At all times, values and values with an affective base should be being established. Finally, an institution can and should care; it can and should achieve an institutional style that belongs to it and which insures if not commands, commitment to the institution.

Let us now make a few suggestions regarding the role of university administrators in attaining these objectives for a given college. So far we have been prescriptive if not actually hortatory. It is easy to say that a college should do this or do that. How ends can be attained is often more difficult to prescribe than to specify the ends themselves. But let us see if we can be helpful in suggesting means to ends.

First, let me assert that presidents, deans, and departmental chairmen, and I should add trustees, do have a significant role. We all remember Ruml's famous dictum: "The trustees have lost control of the faculty and the faculty have lost control of the curriculum." There are aspects of validity to this dictum. But it is doubtful that trustees should have control of the faculty as might seem to be implied. And faculty have not altogether lost control of the curriculum even though it sometimes seems to be so. Frequently, what faculty are doing as the curriculum seems to proliferate without reason is that they are doing "their thing." But when

leadership of a truly leading or motivating character is provided things become orderly, valid and right. By leadership we do not mean assertion of authority. Nor by leadership do we imply the exercise of managerial skills. The essence of leadership is the infusion of value.⁵ It is value infusion that is called for from presidents or deans or both.

Sometimes all that is needed is to reassert values once established but currently ignored. Through precept, example, and judicious use of approval, administrators can signify or reaffirm what is important and these acts will be enough. The faculty must ultimately give its sanction to values asserted and must make any curriculum operative if it is to be valid or viable. But faculties oftentimes, I believe much more often than not, want to give sanction to worthy values and viable programs. If managerial tasks preoccupy those presumably in charge, then educational values fade from perception and lose their controlling quality.

If trivial values preoccupy the attention of the nominal leaders, then trivial values will prevail. Sometimes means supplant the ends in the value system and we thus have a perversion of values. Signs replace that which they should signify. What does the President attend to day in and day out? What does the Dean attend to? Who get appointments most readily: those with educational concerns or those with management concerns? Where are resources placed? For example, are funds available for faculty travel to review programs elsewhere as well as for administrators to review affairs of state? Are books regarding higher education which faculty might read as available to them as books on management techniques are to business administrators?

⁵Philip Selznick. Leadership in Administration. Evanston: Row-Peterson, 1958.

What is put on the agenda for faculty meetings by presidents or deans? Do issues of curriculum loom as large as processes for registration of students? What do trustees expect to have discussed at their meetings? Do faculty members or their representatives ever review for members of boards of trustees matters of program development or evaluation?

Presidents and deans affirm the value systems they deem important not so much in semiannual addresses to the faculty (and such addresses can be important) as in their handling of daily affairs of college life, in how they budget their time, in whom they are seen with, in what they talk about as they lunch with faculty. In all these seemingly mundane activities they are exercising leadership. Does their behavior represent concern for curriculum, for particular institutional purposes, for particular processes of education, for particular faculty and student welfare, or does their behavior seem to indicate these matters are really irrelevant?

Brubacher in his Bases for Policy in Higher Education⁶ notes that both Harold Dodds, once President of Princeton, and Harold Stokes, president of several worthy colleges and universities, in their books on the college and university presidency assert the essentiality of the president having formed a "'mature and consistent' philosophy of education." What these men indicate is that proper exercise of the presidency, and the same can be said for the deanship, and in different form for the trustee

⁶ John S. Brubacher. Bases for Policy in Higher Education. New York: McGraw-Hill. 1965, p. ix.

requires the formation of an educational value system as well as the cultivation of managerial skills. While it is a partial truth to say that the curriculum belongs to the faculty, the president, as he carries in his person and in his deeds the value system of an institution, influences the faculty in what they do about curriculum.

But let us make one final point, curriculum renewal or curriculum reform as well as curriculum maintenance occurs successfully as administration for such is properly organized by the college. If administrative acts do not provide sufficient time for faculty service in curriculum matters, if procedures for production of policy statements are non-existent or weak, if processes for implementation of policy decisions are haphazard or confused, if curriculum policy implementation is unduly delayed, one cannot expect the faculty to maintain a responsible concern. Responsibility for adequate administration for change as well as for order is a responsibility of deans and presidents.

Nowhere have I said there should be committees either standing or ad hoc. It is interesting to note that Bell as he worked at Columbia, was considered to be a committee of one! Nowhere have I said there must be a curriculum coordinator. Nowhere have I said there must be an outside grant to support review or reform. What I have tried to say is that leadership must be exercised and that leadership is essentially a matter of getting commitment to values. And I have added that processes for orderly implementation of change or reform must be present and adequately administered. There are no magic formulas, royal roads, or Aladdin lamps, that I know of to secure quality or achieve change. Commitment, imagination and hard work are significant. I have found no good substitutes for them as I have seen colleges and universities effectively functioning.

Instructional Systems in Higher Education -
Specifications for Individualization*

Stanley O. Ikenberry

New patterns of governance, new clientel, and new definitions of both mission and procedure abound in analyses of the variously defined crises in American higher education. Frequently heard is the notion that something must be done to improve collegiate instruction. As one examines the several problems in this regard, none seems as severe as the failure of higher education instructional systems to adapt to individual learning differences of students.¹

In any serious discussion of improved instruction in higher education, one must first inquire as to whether it is reasonable to expect that significant changes can be brought about. The question may well be asked of instructional systems at any level of education. A blunt but nonetheless realistic answer to such an inquiry may indeed be NO, unless pressures beyond control force such fundamental changes to come about. The extremely modest changes in higher education instructional systems in the

*This paper was presented for the Fall meeting of The Pennsylvania Educational Research Association, University Park, October 4, 1969.

¹For an interesting historical perspective on the lack of progress in individualization of instruction see A. A. Sutherland. "Factors Causing Maladjustment of Schools to Individuals," Adapting the Schools to Individual Differences. 24th Yearbook of the National Society for the Study of Education, Part II. 1925.

last 100 years suggest powerful attractions of tradition, economic efficiency, and administrative-faculty convenience are firmly in support of the values, assumptions, structure, practices and policies which support the conventional systems. The 1970's, however, may bring to bear the pressures and the motives necessary for rather substantial changes in higher education instructional systems. One might see through the crystal ball, even if dimly, the broad outlines of at least three such forces for change. Immediately obvious is a slight decline in public confidence in higher education, now being felt in certain institutions in a tightening of the purse strings. A segment of the American public is puzzled over the eagerness of some of those on the college campus for social reforms. Still another segment agrees with Harold Taylor that American colleges and universities have students without teachers, and that there is indeed a crisis in the academy.² The result has been an easing in the earlier almost unlimited faith in the ability of colleges and universities to educate the future leadership of the country while simultaneously solving a wide range of societal problems. To this group, the academy appears to take its place as a large part of the problem itself.

A second and related source of pressure for change in higher education instructional systems will come about as a result of student demand. The loss of consumer confidence, as

²Harold Taylor, Students Without Teachers, The Crisis in the University (New York: McGraw-Hill Book Company, 1969).

it were, more openly and articulately displayed than ever before, may be expected to contribute to an earlier reexamination of certain fundamental aspects of collegiate instruction that might otherwise have been anticipated. Most student complaints are currently directed at the symptoms of the distress such as grades, credit requirements or compulsory class attendance, rather than at the basic causes of the discomfort. But regardless, the patient knows he hurts and is in search of a remedy.

A third and as yet not well-discussed force for fundamental change in college instructional systems will follow from the pressing demand that higher education begin to serve the needs of the full-range of the population rather than to continue concentration on the intellectually, and usually socioeconomically middle and upper middle class.³ As a first response to the force, many colleges and universities have redesigned admissions policies and practices to recruit increasing numbers of students heretofore not served in large numbers by American higher education. Black students, and other students from socially, economically, or culturally different groups are finding their way in large numbers onto the campuses of most American colleges and universities. The growing enrollment of such students also will call for new accountability in college and university

³For an excellent statement on this issue, refer to "Merit and Equality in Higher Education," by Logan Wilson delivered to the 52nd annual meeting of the American Council on Education, October 9, 1969. To be published by the American Council on Education.

instructional programs. The same pressures which brought forth special recruitment programs, special programs of financial aid, new courses and new majors, will not allow such students to be systematically rejected from higher education as academic failures.

Thus, the need to strengthen public confidence, the need to establish greater student confidence, and the demand to provide educational opportunity to a more complete range of the population, these and other factors may well bring about forces beyond our ability to control, and hence, the need for basic rather than surface changes in instructional systems in American higher education.

What does the evidence from educational research and instructional experimentation during the last two decades suggest? Where do we stand? The preliminary evidence is not encouraging. A recent report released by the Oregon Center for the Advanced Study of Educational Administration⁴ presented a rather dismal picture on the progress made by higher education researchers during the last decades. The authors report as follows:

Given a population of 7 million adults, or near adults, attending two and four-year colleges and universities as students, what can we say about the relations among various methods for instruction...? We are able to state decisively that no particular method of college instruction is measurably to be preferred over another, when evaluated by student examination performances. We may also conclude that replication of the 91 studies examined in detail in this survey would not produce conclusions different from ours. Any future research on comparative teaching methods at the college level must move in new directions.

⁴Robert Dubin and Thomas C. Taveggia, The Teaching-Learning Paradox: A Comparative Analysis of College Teaching Methods. Eugene, Oregon: Center for the Advanced Study of Educational Administration, 1968.

If innovation and experimentation in college and university instruction is to move in new directions, what might these be? To answer the question, it might first be helpful to concentrate on certain characteristics of conventional higher education instructional systems. The focus will be on some of the apparently negative characteristics of the conventional instructional system when viewed from the standpoint of individualization of instruction.

Time restricted. One of the first and most obvious characteristics of the higher education instructional systems is that they are "time restricted." That is, the system is designed in such a way that instruction begins at a specified date, the opening of the semester, and must conclude some 15 to 18 weeks later. Classes are scheduled at specified times, usually 3 hours per week during that period, and it is generally assumed that the essential operation of the instructional system will take place within that framework. The time boundaries are seen as essential to organize groups of learners and instructors. Many students, of course, are well-accommodated within this time restricted framework and would succeed regardless of the instruction model or method. But another sizable proportion of students may either be bored by the slow pace of the instruction or bewildered by an inability to keep pace. In a time restricted system the student who finds it impossible to move along as rapidly as his classmates may be "failed" and required to

recycle the system, that is, to repeat the course; or, if this seems impractical he may be given a D and passed along to the next course. Should this happen too frequently, the system must reject the student for "academic reasons." In any case, the modest ability of the instructional system to adapt to individual differences in learning rates is inefficient from an economic and social cost point of view. It is an ineffective, wasteful approach if one were concerned with the maximum development of human potential.

Normatively based. A second troublesome characteristic of the conventional higher education instructional systems is that it is "normatively" based rather than criterion based. Because of an inability to define educational objectives in unambiguous and operational terms, colleges and universities must rely on normatively based standards. Although we are able to compare students against each other, we are unable to define their progress in terms of any explicitly defined standard or criterion. The fact that a student with a low predicted grade point average in one college can graduate with honors from another, or the fact that the quality of the freshman class in a university may increase dramatically over a decade while the percentage of D's and F's remains constant are both byproducts of a normatively based instructional system. Individualization of instruction, that is, strict accountability for the educational progress of a student, becomes particularly difficult in a system which

is based on standards of group performance rather than on explicit personal performance criteria. To educate culturally, economically, intellectually or socially different students presents a particularly difficult problem in the "normative" system because by its very nature it tends to reject the non-normative or "different" student.

Symbolism of process. Related to the absence of explicitly defined performance criteria, a third characteristic of higher education instructional systems relates to their emphasis on the symbolism of the instructional process rather than on the substance or the product of instruction. The reliance, for example, on credits, class attendance, the emphasis on a "four year" college experience, and other symbols of a college education results. The essence of individualization of instruction suggests variety in the means used to achieve specific instructional ends. The process of instruction should vary in accord with the needs of the individual learner. In a system in which there is a heavy emphasis on the symbolism or the ritual of instruction rather than on the substance or the product, variation in the means or process of instruction becomes difficult.

Manpower screen. A fourth characteristic of higher education instructional systems is that they have traditionally served as manpower screens rather than as systems for manpower development. Perhaps such a characteristic was functional in

an earlier day in which only a small proportion of the total population could be accommodated in occupations requiring a high level of intellectual development. Suddenly, the society has changed rather radically in this regard, however. There is less room in the occupational structure for semi-skilled and unskilled individuals, and a seemingly insatiable demand for individuals with highly developed skills and intellectual capacity. The essence of individualization of instruction is the full development of the talent and capacity of each individual, rather than the systematic screening of the intellectual crop. While the earlier discussed "normative" characteristic of the system is essential to the "screening" function, it is a senseless and dysfunctional quality in an instructional system designed primarily to develop human talent rather than screen it.

Evaluation Conscious. It is well-established that accurate, timely and continuous feedback to the student as to his progress is an important condition for efficient and productive learning.⁵ Higher education instructional systems are in many respects poorly constructed to provide effective learner feedback and that feedback made available to the student tends to be "evaluation oriented" rather than improvement oriented. A great

⁵See, for example, B. F. Skinner, The Technology of Teaching (New York: Appleton-Century-Crofts, 1968).

portion of feedback received by the student is in the form of an evaluation of a paper, or his semester grade in a course, or other forms of appraisal which, while generally informative as to his standing, do not qualify as effective learner feedback. As section sizes grow larger, as a television set is interposed between the instructor and the learner, or as a graduate assistant assumes an interface position, the amount of helpful feedback received by the learner may be markedly reduced. Feedback to the student and student evaluation need not be viewed as synonymous. For example, the instructional system should allow students to test themselves frequently without reference to evaluation or grading, the aim being to allow students to know precisely where they are weak and to confirm their strengths. Too frequently the system is faithful to its functions of "screening" manpower through evaluation rather than developing it through feedback.

Student Adaptation. In short, the instructional system is designed in such a way as to assume that the major forms of adaptation to the individual will be made by the individual, rather than by the system.⁶ Whether in the case of differences in rate of learning, differences in style or mode of learning, the definition of criterion or performance standards for achieve-

⁶For a discussion of the ways in which conventional instructional systems adapt to individual differences see the chapter by Lee J. Cronbach "How Can Instruction be Adapted to Individual Differences?" in Learning and Individual Differences by Robert Gagne' (Columbus, Ohio: Charles E. Merrill Books, Inc. 1967), pp. 23-29.

ment, or in the acquisition of adequate feedback, it is assumed that the student will adapt to the demands of the system. Indeed, adaptation of the system to the needs of individual learners might be judged as either unethical or unfair in many instances by those who value highly the manpower screening function of colleges and universities. To remove an "F" grade in French from a student's record even though on repeating the course he demonstrated "B" performance would be viewed by many if not most as both dishonest and unfair "to the student who made a "B" the first time."

What seem to be reasonable directions for research and experimentation in higher education instruction? Perhaps the most critical requirement for future innovation and experimentation in higher education instruction is an openness to change in the conventional instructional system characteristics. To seek substantial improvement within the conventional framework of the time restricted system, with continued emphasis on higher education as a manpower screen with adherence to the conventional normative grading system, continued reliance on the symbols of instruction rather than the substance of learning, is unrealistic. None should be unduly surprised if the results of experimentation within this rigid framework turn out to be equally conventional.

Those concerned with fundamental change in higher educational instruction should begin with an examination of the characteristics of an optimum instructional system with special attention to

maximizing the relationship between the characteristics of the system and the generally accepted principles of human learning. Required is the development of a range of alternative instructional systems in which the general characteristics or specifications of the system can be made explicit, in which the performance of various aspects of the instructional system can be evaluated, and as appropriate, modified. One such set of specifications might read as follows:

1. THE INSTRUCTIONAL SYSTEM SHALL BE INDEPENDENT OF TIME RESTRICTIONS IN THE SENSE THAT INDIVIDUALS SHALL BE ABLE TO PROGRESS AT THEIR OWN RATES, SHALL BE ABLE TO BEGIN THE LEARNING SEQUENCE WHEN IT SEEMS EDUCATIONALLY DESIRABLE, AND SHALL BE ABLE TO CONTINUE THE INSTRUCTIONAL PROCESS UNTIL MASTERY HAS BEEN ACHIEVED.
2. THE OBJECTIVES OF INSTRUCTION SHALL BE RELEVANT TO THE IMMEDIATE AND LONG TERM NEEDS OF THE LEARNER, AND THE LEARNER SHALL BE COGNIZANT OF THIS RELEVANCE.
3. EDUCATIONAL OBJECTIVES SHALL BE STATED IN UNAMBIGUOUS TERMS WHICH MAKE CLEAR THE INTELLECTUAL COMPETENCIES TO BE DEVELOPED BY THE LEARNER.
4. THE INSTRUCTIONAL SYSTEM SHALL MAXIMIZE STUDENT ACTIVE INVOLVEMENT IN THE LEARNING PROCESS.
5. THE INSTRUCTIONAL SYSTEM SHALL PROVIDE ACCURATE, TIMELY AND INFORMATIVE FEEDBACK TO THE LEARNER REGARDING HIS PROGRESS TOWARD LEARNING GOALS.
6. THE INSTRUCTIONAL SYSTEM SHALL BE DESIGNED TO MAXIMIZE THE PRINCIPLES OF POSITIVE REINFORCEMENT AND ELIMINATE OR MINIMIZE THOSE ASPECTS KNOWN OR SUSPECTED TO BE AVERSIVE TO THE LEARNER.
7. THE INSTRUCTIONAL SYSTEM SHALL INSURE APPROPRIATE SEQUENCING OF LEARNING EXPERIENCES, SHALL BE CAPABLE OF DIAGNOSIS OF LEARNER DEFICIENCIES AND ADJUST THE INSTRUCTIONAL SEQUENCE APPROPRIATELY.

8. THE INSTRUCTIONAL SYSTEM SHALL SOLICIT RELIABLE AND TIMELY INFORMATION ON INDIVIDUAL STUDENT LEARNING PROGRESS AND SHALL MAKE ADAPTATIONS APPROPRIATE TO THE INDIVIDUAL LEARNER.
9. IN THE DEVELOPMENT OF INSTRUCTIONAL GOALS AND PROCESSES, THE INSTRUCTIONAL SYSTEM SHALL TAKE INTO ACCOUNT THE TOTAL ENVIRONMENT IN WHICH THE STUDENT LEARNS.
10. THE INSTRUCTIONAL SYSTEM SHALL HAVE A RECOGNIZABLE "STYLE", A COGNITIVE STRUCTURE SUFFICIENTLY OBVIOUS TO PROVIDE A BASIS FOR STUDENT CHOICE AMONG INSTITUTIONS, TO PROVIDE MEANING OR RELEVANCE TO LEARNING, AND TO ENCOURAGE CONTINUOUS COMMITMENT TO LEARNING THROUGHOUT LIFE.

Within the framework of this set of specifications, a wide range of instructional alternatives is available. Instructional systems from the beginning of time have contained these qualities in differing amounts. Moreover, the ability of any particular instructional system to satisfy the demands of each of the specifications will be limited and, of course, relative. Different instructional alternatives will maximize certain qualities but yet be clearly deficient in other respects.

Through more liberal use of the "I" or incomplete grade, more liberal use of credit by examination, greater involvement of students in shaping the curriculum, recasting of instructional objectives in operational behavioral terms, specific efforts to get the learner actively involved in learning, to provide more accurate and timely feedback, and to remove some of the more obvious aversive characteristics of learning, -- in short, modifications designed to make instruction more adaptive to the needs of the learner rather than to continue to demand that the

learner adapt to the system--efforts along these lines could result in some significant improvement of instruction within the conventional college or university system.

But it also should become increasingly apparent that colleges and universities utilize only a fraction of the available alternatives in the development of instructional systems. Higher education is bound by the ritual or process of instruction rather than to its substance or end product. Computer assisted instruction and other technological options, for example, enable educators to attack the problems of variation in learning rate, active involvement of the learner, timely and positive reinforcement, more precise sequencing, and adaptation of the system to the individual learner in ways which were either impossible, impractical, or economically not feasible a decade ago. Higher education should begin to move such systems from the design laboratory to the front lines of educational practice and utilization.

The failure of previous college and university instructional systems to make steady and significant gains in effectiveness,⁷ however, is not that they failed to utilize technology nor that they failed to try new approaches to teaching. The failure has come about because these efforts have had no particular relationship to principles of human learning. Application of television, for

⁷ For a careful review of the current state of the art see W. J. McKeachie, "Research on Teaching at the College Level," Handbook of Research on Teaching, Edited by N. L. Gage, (Chicago: Rand McNally and Company, 1962).

example, was usually done for economic rather than for educational reasons. Still another illustration, small classes failed to maximize their potential to create an optimum environment for learning, and were therefore found by comparison to be no more effective than large classes. Again, colleges moved to large group instruction for economic reasons as well as faculty convenience. It must be reported that comparatively little has been done to design and test experimental instructional programs to insure the educational success of all college students. Typically, neither the design nor the aim of the research has been in this direction.

The future direction of instructional innovation and experimentation in colleges and universities must be toward the development and evaluation of alternative instructional systems designed to educate the full-range of the college population. The mechanisms for variation in rate, reinforcement, sequencing, and so forth must become explicit and the impact of each of these elements on student learning needs to be measured, modified and evaluated. Modification of the system itself on the basis of the best in current learning theory may make a contribution to bringing about a resolution of the so-called crisis now confronting higher education instruction and at the same time avoid coming face to face at the close of the next decade with the hard but nonetheless accurate conclusion that "we are able to state decisively that no particular method of college instruction is measurably to be preferred...."⁸

⁸ Robert Dubin and Thomas C. Traveggia. op. cit.